BeanAir
WIRELESS IOT SENSORS

QUICK START

IOT GATEWAY

IOT GATEWAY

With 3G / 4G / LTE Connectivity

FOR WIFI SENSORS

Contents

List of Figures

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1. TECHNICAL SUPPORT

For general contact, technical support, to report documentation errors and to order manuals, contact BeanAir® Technical Support Center (BTSC) at:
tech-support@beanair.com

For detailed information about where you can buy the BeanAir® equipment/software or for recommendations on accessories and components visit:
www.beanair.com

To register for product news and announcements or for product questions contact BeanAir's Technical Support Center (BTSC).

Our aim is to make this user manual as helpful as possible. Please keep us informed of your comments and suggestions for improvements. BeanAir® appreciates feedback from

2. VISUAL SYMBOLS DEFINITION

Symbols	Definition
	Caution or Warning – Alerts the user with important information about BeanAir® wireless IOT Sensors. if this information is not followed, the equipment /software may fail or malfunction
	Danger – This information MUST be followed if not you may damage the equipment permanently or bodily injury may occur.
	Tip or Information – Provides advice and suggestions that may be useful when installing BeanAir Wireless IOT Sensors.

3. ACRONYMS AND ABREVIATIONS

AES	Advanced Encryption Standard
CCA	Clear Channel Assessment
CSMA/CA	Carrier Sense Multiple Access/Collision Avoidance
GTS	Guaranteed Time-Slot
kSps	Kilo samples per second
LDCDA	Low duty cycle data acquisition
LLC	Logical Link Control
LQI	Link quality indicator
MAC	Media Access Control
PER	Packet error rate
POE	Power Over Ethernet
RF	Radio Frequency
SD	Secure Digital
UPS	Uninterruptible power supply
USB OTG	USB On The Go
WDAQ	Wireless DAQ
WSN	Wireless Sensor Networks

4. QUICK PRODUCT DESCRIPTION

4.1 UNBOX YOUR WILOW IOT 4G GATEWAY

Wilow IOT Gateway is available in three versions:

- WILOW-IOT-GATEWAY-4G-MPWR, Mains Power supply
- WILOW-IOT-GATEWAY-4G-WDS-MPWPR, Mains power supply, WDS function
- WILOW-IOT-GATEWAY-4G-SOLAR, Solar Power Supply WILOW-IOT-GATEWAY-4G-SOLAR, with Solar Power Supply

The difference between the Mains power version and the solar panel version, is that the WDS function is only available on the Mains power version.
So users who works with the solar power supply version canot use the WIFI bridge because there is no WDS options which is available.

It is provided with a 4G/LTE antenna, WiFi antenna, external cables for both WiFi & 4G/LTE antennas and a power supply plug

4.2 ACCESSORIES DESCRIPTION

In addition to the WiLow® IoT gateway you will find inside the packet a list of accessories:

- 4G/LTE Antenna
- WiFi Antenna
- External cable for Wifi antenna
- External cable for 4G/LTE antenna
- Power supply plug

4.2 ACCESSORIES DESCRIPTION

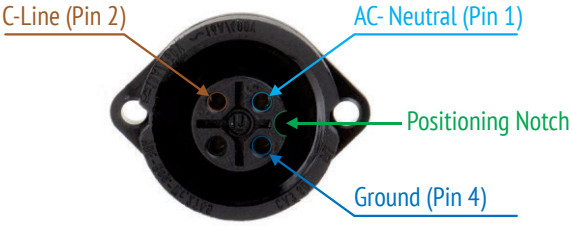
For more info on the accessories and its specification please refer to the user manual

5. INSTALLATION

1 : Please follow the following wiring code instructions to correctly build your own AC Power supply

• MAINS POWER SUPPLY (HARDWARE VERSION BEFORE 15/05/2019)

The previous hardware version comes with a Female Socket and a Male Plug



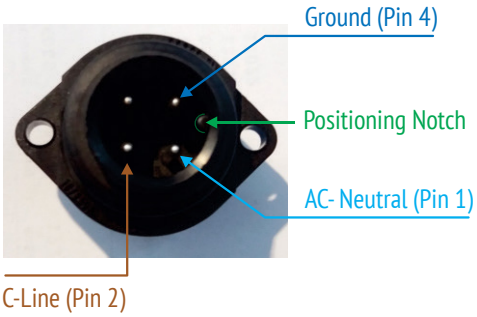
Wiring Code – Socket Side

Plug Ref: 934124100, provider: Hirschmann

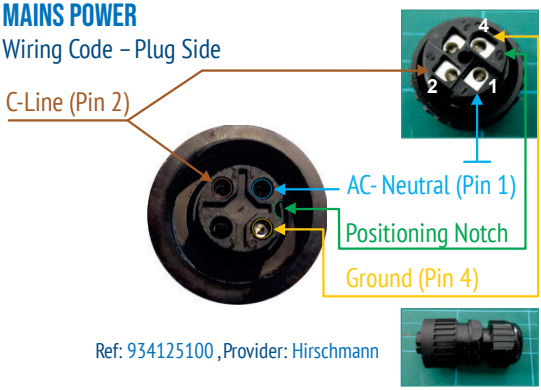
• MAINS POWER SUPPLY (HARDWARE VERSION AFTER 15/05/2019)

The previous hardware version comes with a Male Socket and a Female Plug

MAINS POWER
Wiring Code – Socket Side



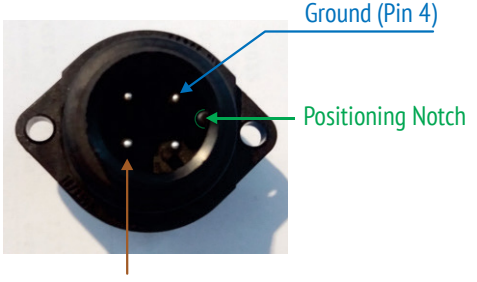
MAINS POWER
Wiring Code – Plug Side



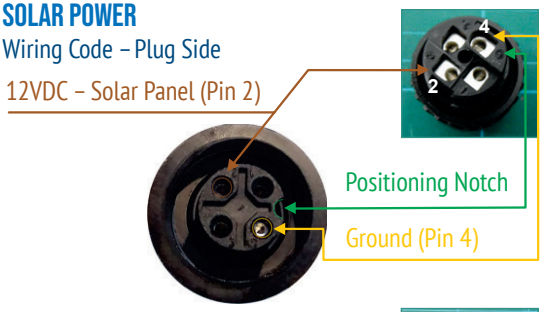
Ref: 934125100 , Provider: Hirschmann

• SOLAR POWER SUPPLY (HARDWARE VERSION AFTER 15/06/2019)

SOLAR POWER
Wiring Code – Socket Side



SOLAR POWER
Wiring Code – Plug Side



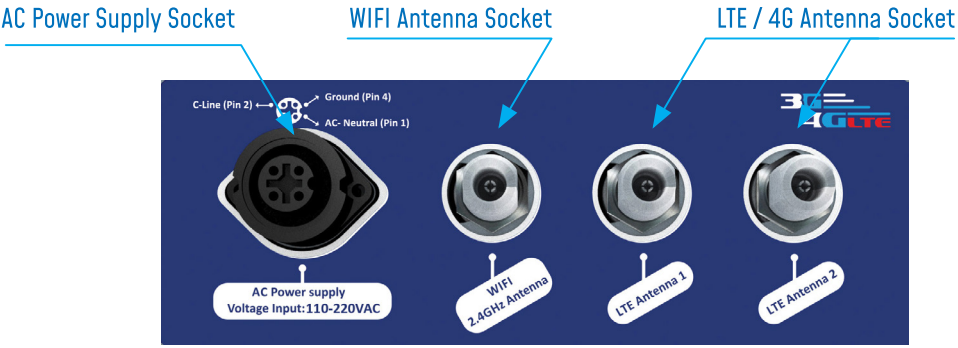
Ref: 934125100 , Provider: Hirschmann

DC Power:

The solar power controller can work between 13VDC to 20VDC, user can use an AC/DC power adapter in this voltage rating.

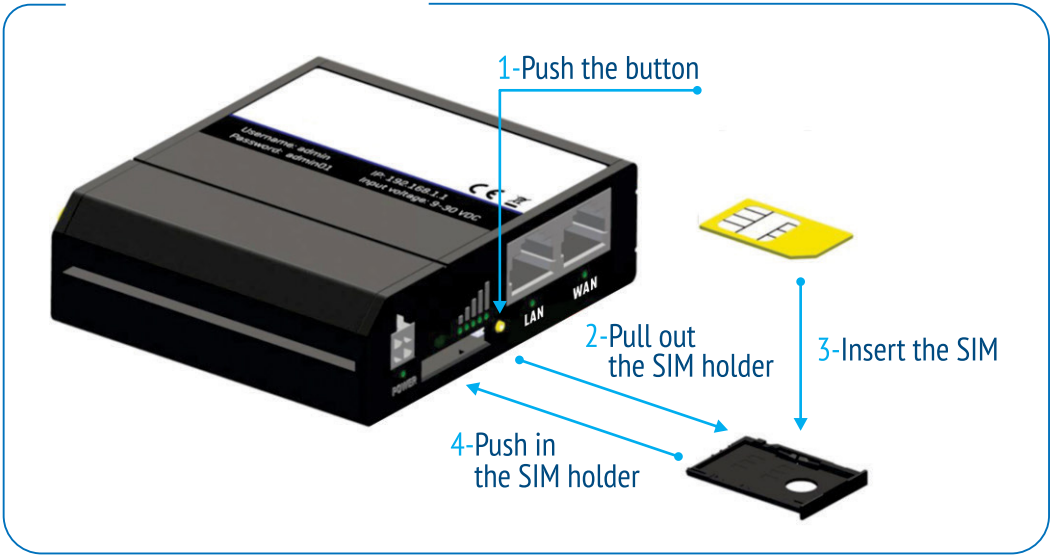
If the DC Voltage is less than 13VDC, the provided voltage will not be enough to power the Solar Power Manager

1. Use the provided antennas cables and power supply cable to connect to the appropriate connectors as shown below in the figure.

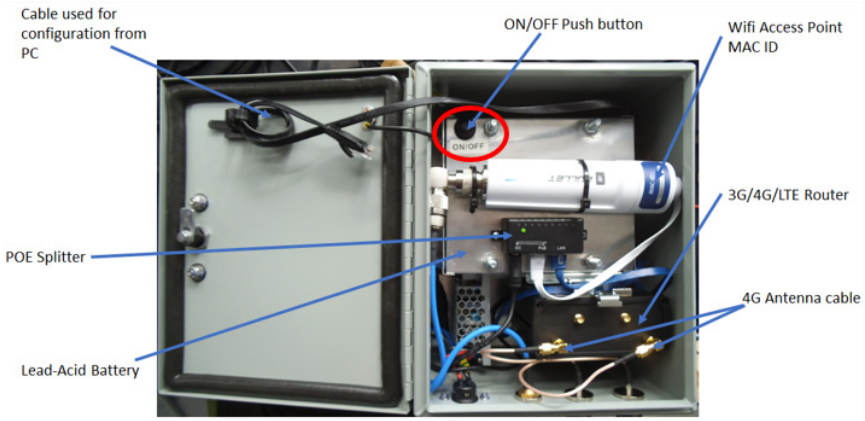


2. Open the box enclosure and use the Ethernet cable to connect your Laptop to the router in order to configure the IoT Gateway and get it ready for remote monitoring, as well to insert SIM card. Use a screwdriver to remove the black lid and properly insert the SIM card.

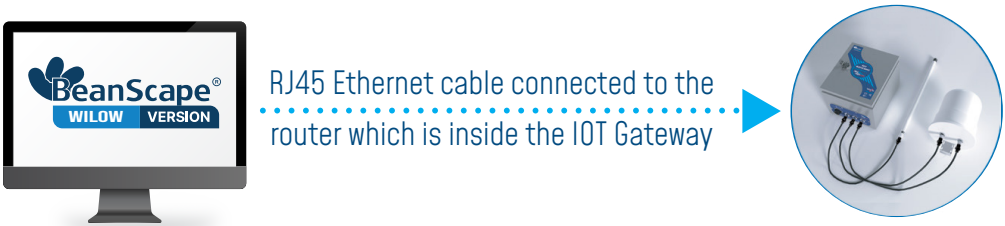
SIM CARD INSERTION



3. Don't forget to turn On the switch mode box by pushing the ON/OFF push buton at the top left corner, in order to charge the Lead-Acid Battery and get the gateway ready for configuration.



4. Use an ethernet cable to connect the router inside the IOT Gateway® to your laptop.

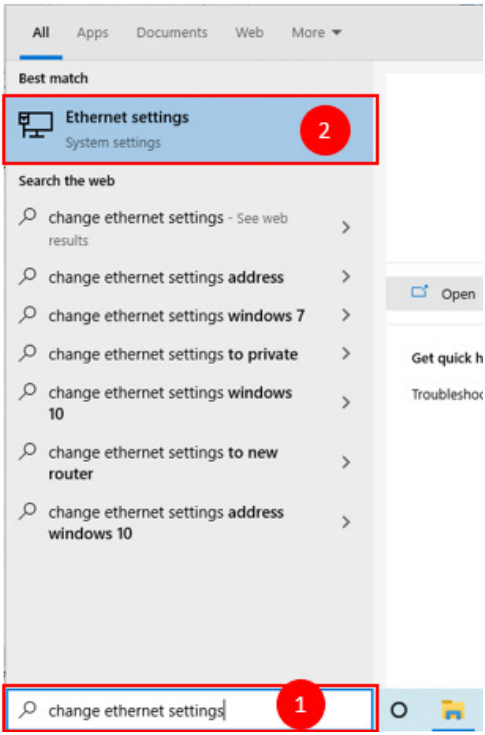


6. DEFAULT SETTINGS

THE IOT GATEWAY® COMES WITH A DEFAULT IP ADDRESS: 192.168.1.243

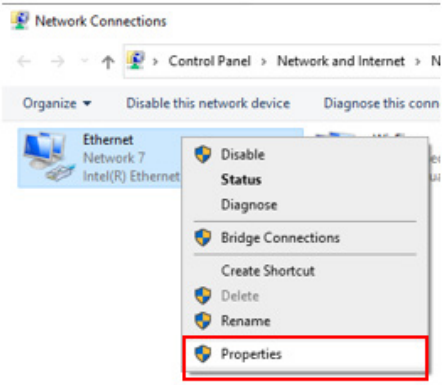
1. Assign a static IP address to your PC within the same subnetwork as your IOT Gateway®

• In the search bar tap change ethernet settings, then click on open

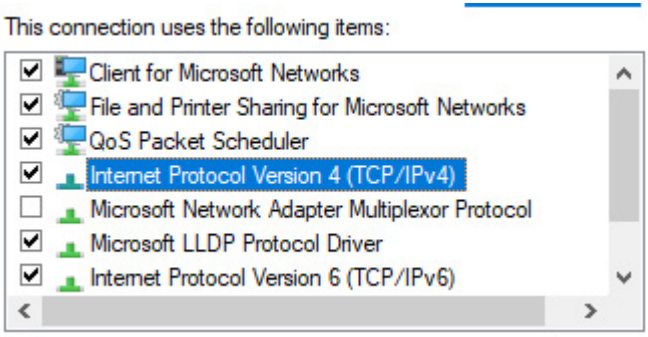


• Click on change Adapter settings

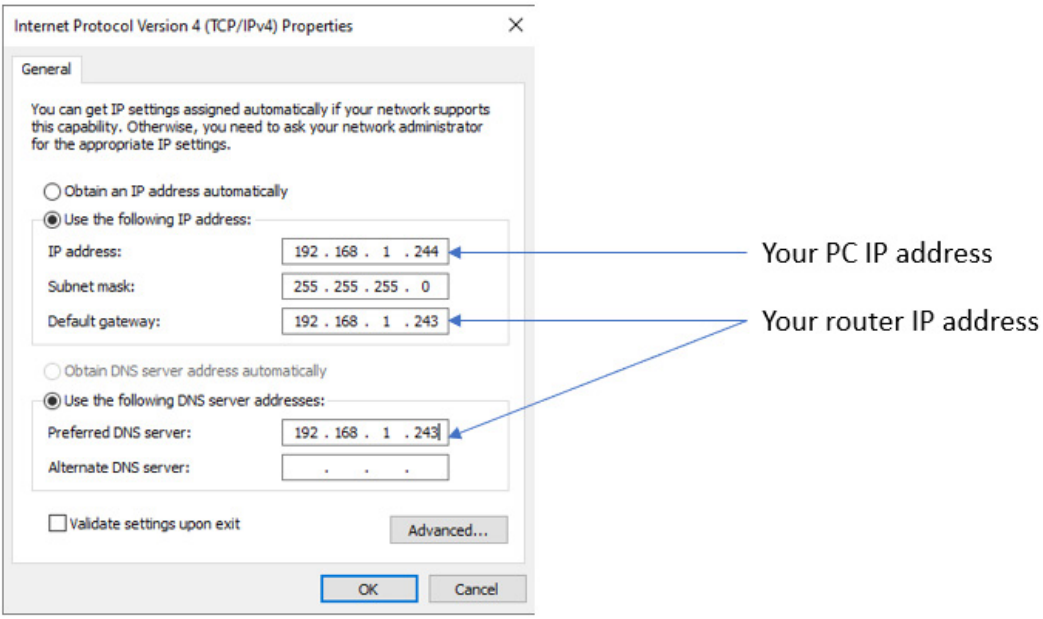
- Right click on the Etherner device with is connected to your IOT Gateway, choose Propreties



- Double click on Internet Protocol Version4 (TCP/IPv4)



- Enter the flowing settings:
  - Enter any ip in the form of 192.168.1.XXX where XXX is a number from 2 to 254 (except 243 which is the router IP address).
  - Enter **255.255.255.0** for your subnet mask
  - The default gateway must come with the same IP address that your 4G Router has **192.168.1.243**
  - Finally enter primary DNS server IP , the same than your 4G Router IP **192.168.1.243**
  - Click on OK validate your configuration



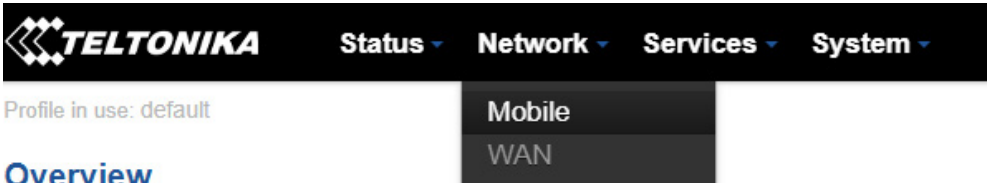
• Once your PC and IOT Gaetway® are connected to the same network, you can easily have access to the router.

7. HAVE ACCESS TO YOUR 4G ROUTER

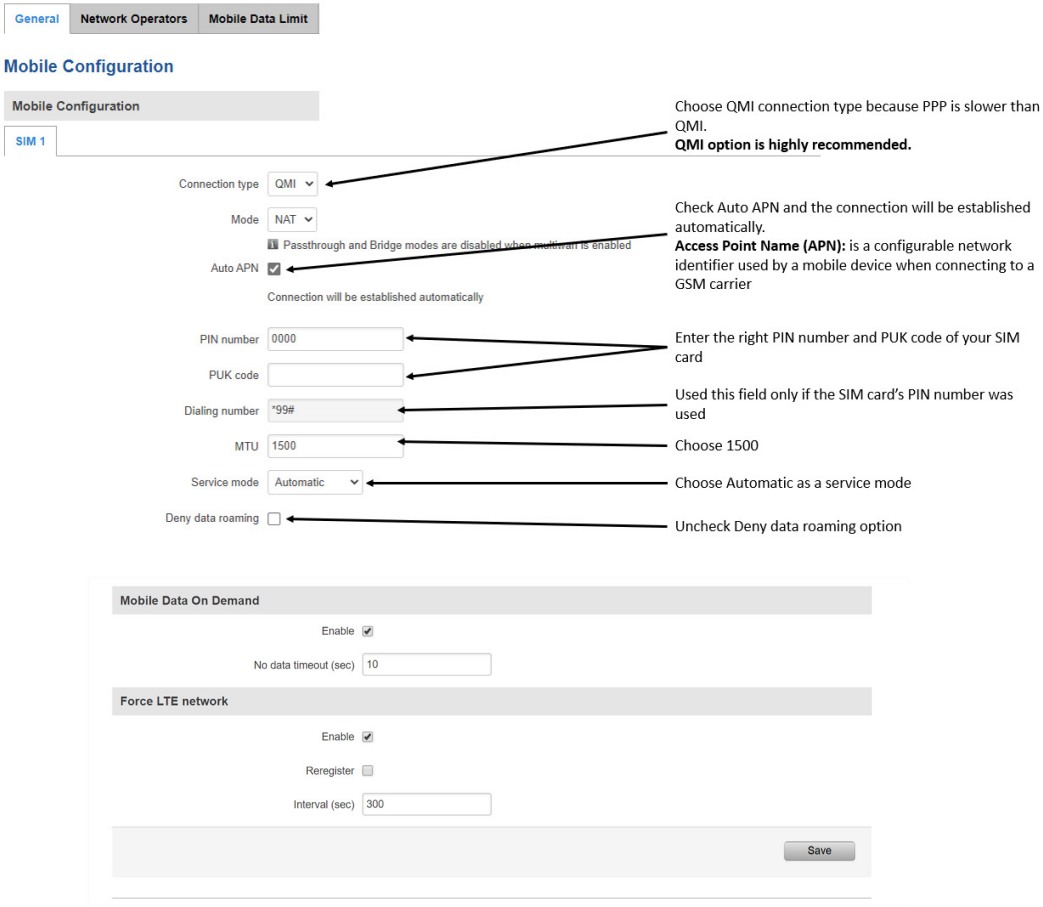
Use your browser on your PC and log in to the router using the following settings:
• IP address: 192.168.1.243 (tap it in google search bar)
• Username: admin | password: Beanair2020!

7.1 SIM CARD CONFIGURATION

• To configure your 4G/LTE Router go on Network then Click on Mobile



- Now configure your mobile settings as follow

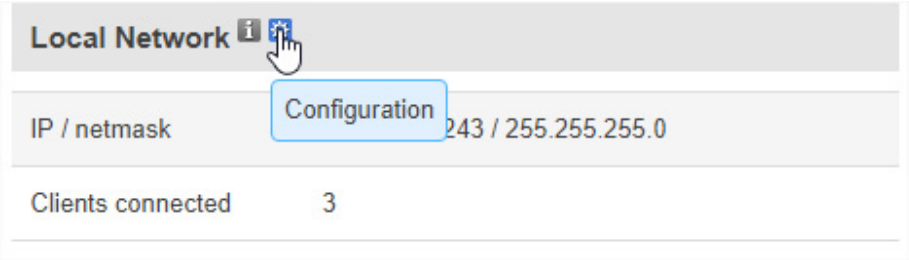


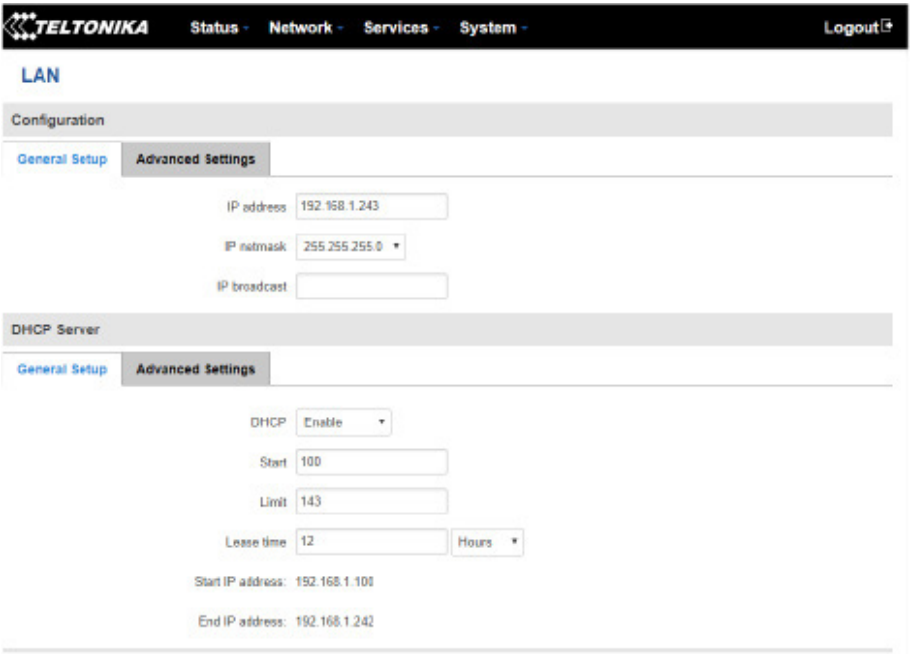
You can get the APN ID from your telecom operator provider

If an invalid PIN number was entered (i.e. the entered PIN does not match the one that was used to protect the SIM card), your SIM card will get blocked. To avoid such mishaps, it is highly recommended to use an unprotected SIM. If it happens and you insert a protected SIM and the PIN number is incorrect, your card won't get blocked immediately, although after a couple of reboots OR configuration saves it will

7.2 MAKE SURE THAT THE DHCP SERVER IS ENABLED IN YOUR ROUTER

• LAN IP address should be 192.168.243 by default and if this is not the case for whatever reason ,you will need to set it back to 192.168.1.243 in the configuration panel you can find it in the overview page





7.3 CONFIGURE THE WIFI ACCESS POINT

7.3.1 Router Settings With WDS

• Wilow® IOT Gateway integrates a high gain WIFI Access point. This access point is already preconfigured with the following settings, however the access point settings on the router are disabled, so the WIFI connectivity will be provided by the WIFI Bridge:

AP IP address	192.168.1.20
AP Webserver Login	Ubnt
AP Webserver PW	Beanair2020!
WIFI SSID	Beanair
WIFI Password	Beanair2019
Encryption	WPA2-PSK, Cipher، Auto
WIFI RF Channel	Auto
AirMax function	disabled

• If you fail to access to the WIFI Bridge, just reset it to the factory settings.
To reset it to factory defaults, press and hold the Reset button for more than 10 seconds while the device is powered on.

• After the reset process the default login information is proved below:
- Default IP Address (LAN IP): 192.168.1.20
- Default User Name: ubnt
- Default Password: ubnt

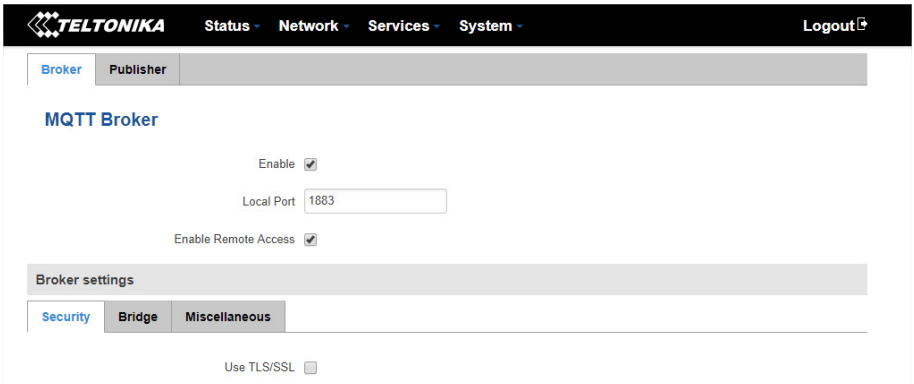
7.3.2 Router Settings Without WDS

• By default the WIFI access point is enabled with the following settings:

WIFI SSID	Beanair
WIFI Password	Beanair2019
AP Webserver PW	Beanair2020!
Encryption	WPA2-PSK, Cipher، Auto
WIFI RF Channel	Auto

7.4 ENABLE THE MQTT PROTOCOL

• Under services tab ,go to MQTT Broker and make sure it is enabled and using Local port 1883 (make sure this port is not used by other application)

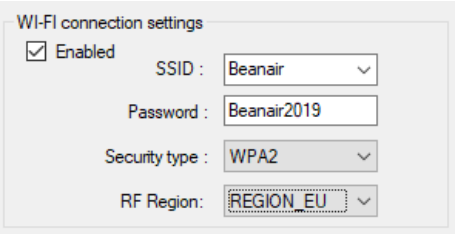


7.5 BEANDEVICE® WILOW® CONFIGURATION

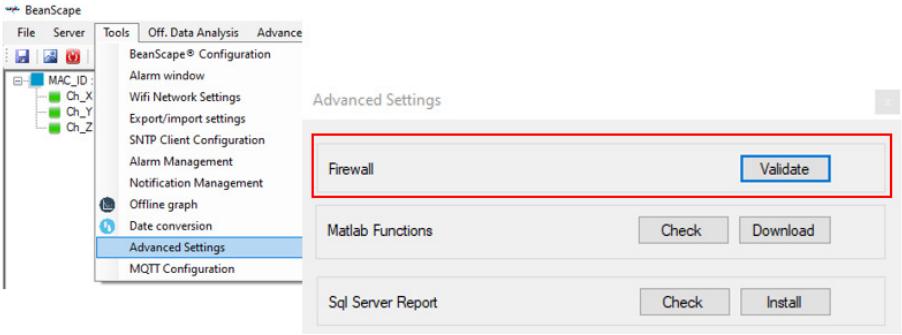
• Connect your Wilow® BeanDevice® to your laptop using the USB cable, turn it on using the magnet, run the BeanScape® supervision software Wilow® then go to (Tools --> WIFI network settings), enter the default network settings and click on validate.

The WIFI AP on the Wilow® IoT Gateway comes with the following WIFI configuration:

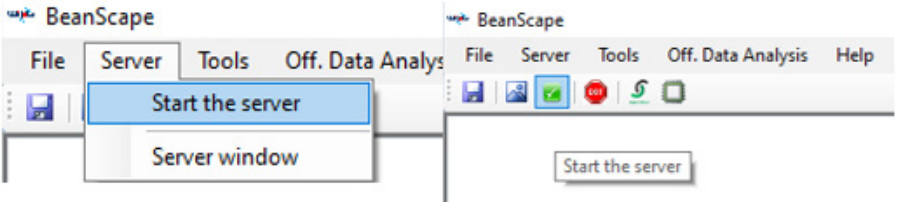
- Default SSID: Beanair
- Password: Beanair2019
- security type: WPA2-PSK



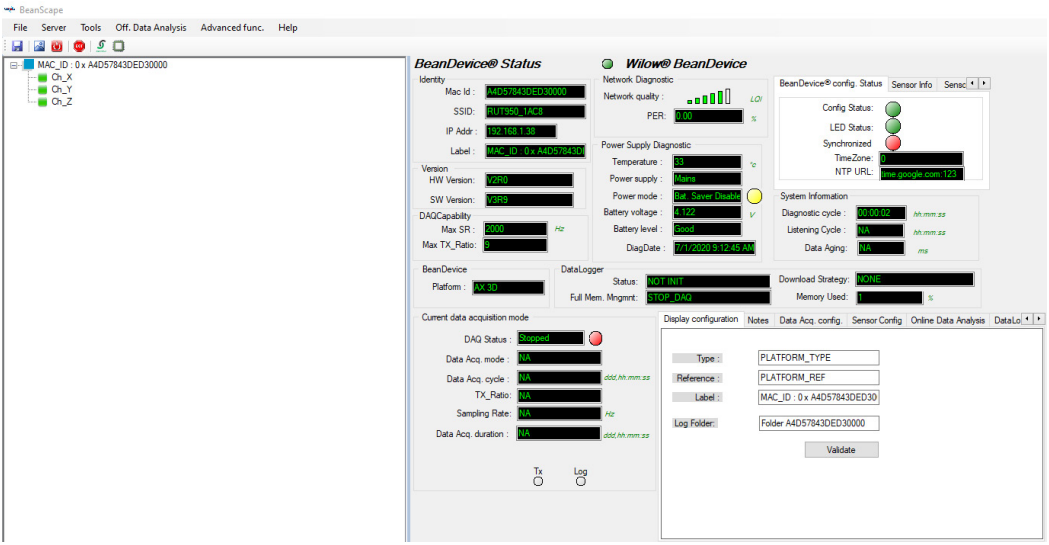
- Add BeanScape to firewall, from tools click on Advanced Settings then Add to Firewall



- Now start the BeanScape® Server by clicking directly on the Green button or selecting Start the server from the Server option on the Menu bar



• The BeanDevice profile will be displayed on your screen



• Next, start MQTT configuration panel on BeanDevice® tab

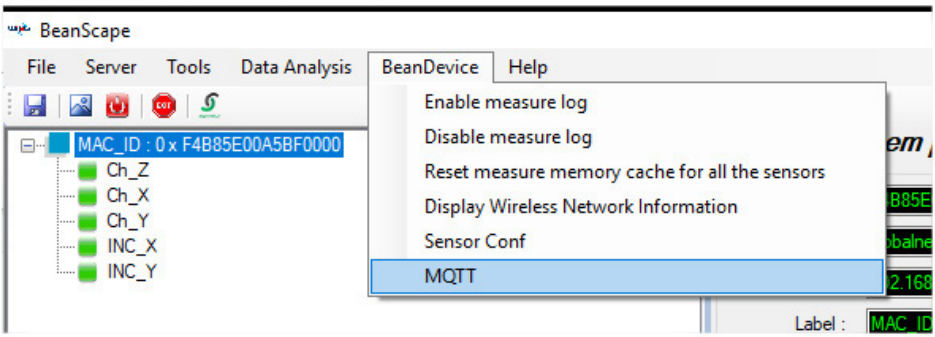
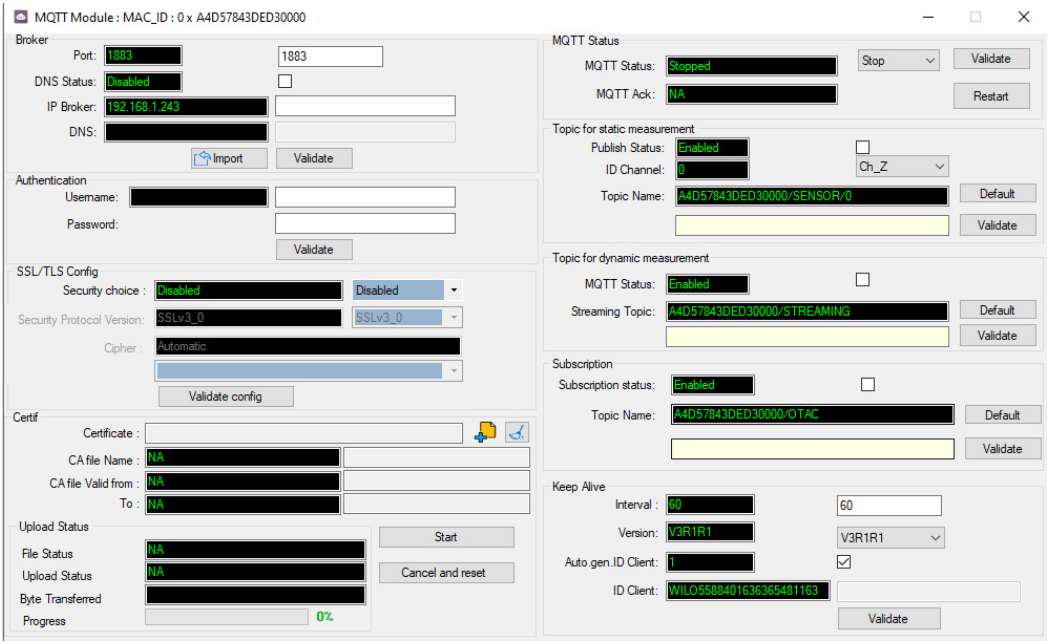
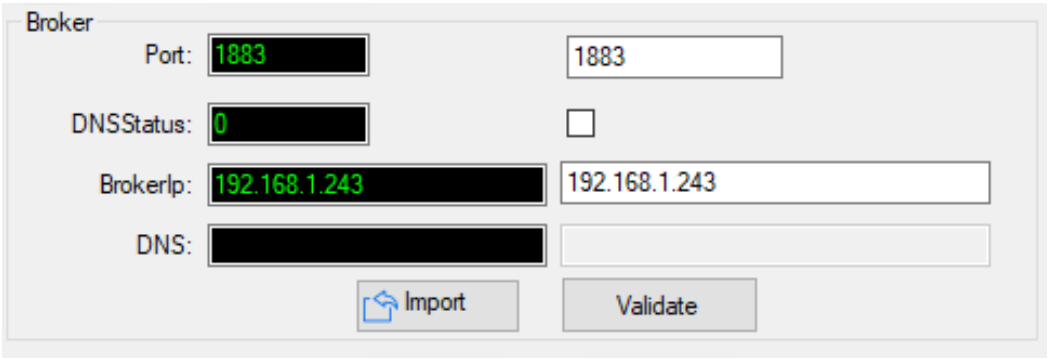


Figure 29 :BeanDevice MQTT module configuration

• MQTT configuration window will pop up:

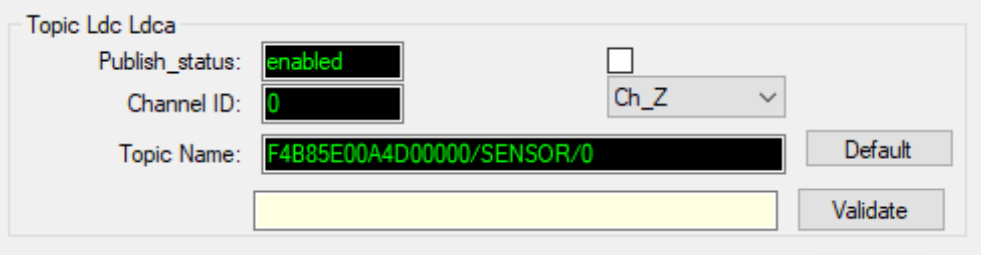


• Follow these following screenshots and fill in your settings, then validate.

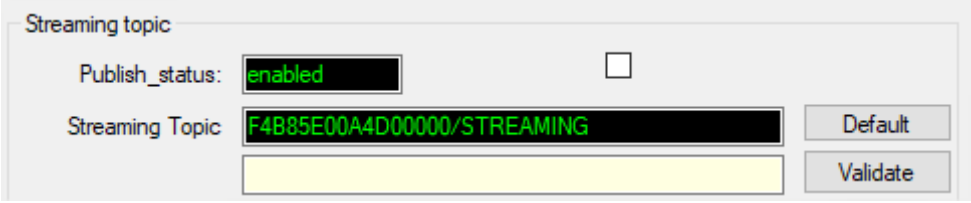


• Here you can check your MQTT different status, connected, stopped , connecting or disconnecting and can start your connection from here.

• LCDC topic is a string used by the broker to filter messages for each LowDutyCycle channel of the connected BeanDevice, enable each channel and set its name to default to avoid problems. Then validate

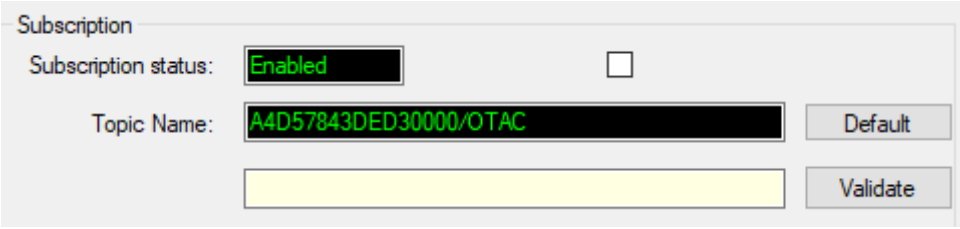


• Streaming topic is a string used by the broker to filter messages for streaming data from the connected BeanDevice. Enable and set its name to default then validate



This Topic will be the string we will use to connect to the BeanDevice from remote BeanScape supervision software in order to send OTACs. By default this will be set to MAC_ID/OTAC .

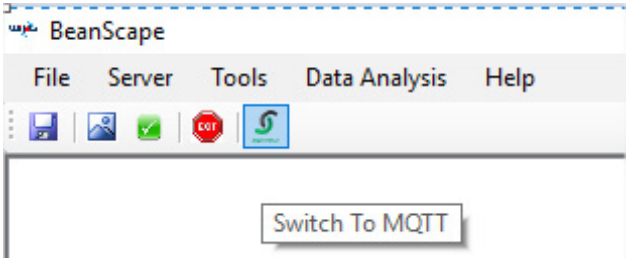
• Enable subscribe and set your Topic to default and validate.



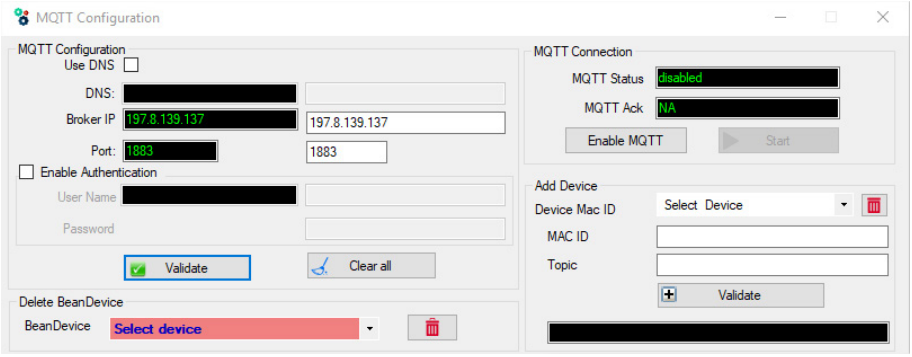
7.6 BEANSCAPE® RA CONFIGURATION (REMOTE ACCESS)

Using BeanScape® RA you will have the ability to subscribe remotely to any BeanDevice® publishing data, first you have to install and run your BeanScape RA at your monitoring office

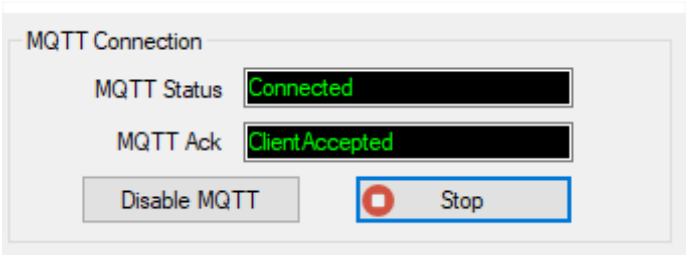
• You have to switch to MQTT using this button



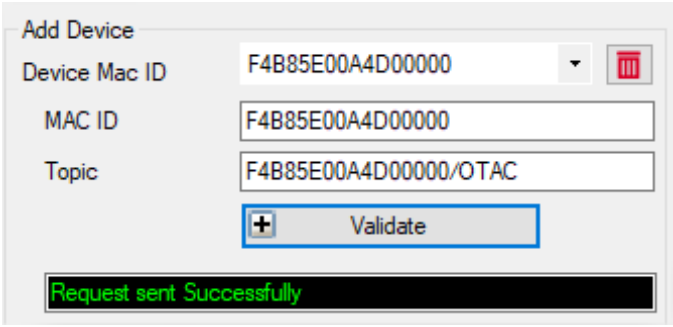
• Next ,go to Tools tab -->MQTT configuration and a new configuration window will pop up ,and you will establish a communication with your IoT Gateway ,



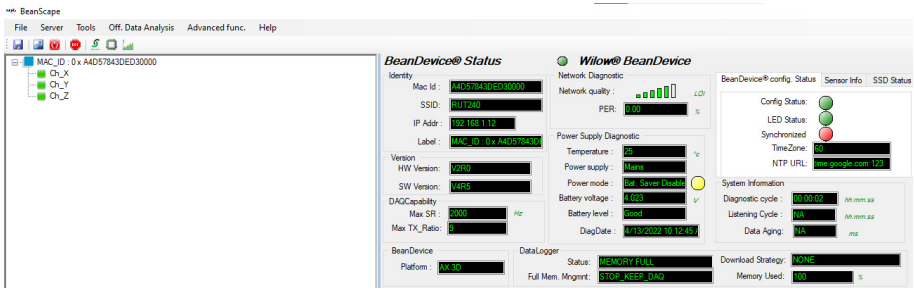
- Port should be set to 1883
- In Broker IP you have to enter the IoT Gateway Public IP Address, then validate
- From MQTT connection, enable MQTT by clicking on start button



- Now, enter the BeanDevice® Wilow® MAC_ID and Subscribe to the same Topic that we had previously setup for the BeanDevice, then validate



- Close the MQTT configuration window and make sure the server is started, the BeanDevice will be at your disposal, to read measurement,



8. WHERE TO FIND MORE TECHNICAL INFORMATION ?

- For more technical litterature, please visit our White Paper Page:

- Please refer to the BeanDevice® 2.4GHz EcoSensors user manual section for more information
https://www.wireless-iot.beanair.com/files/UM-RF-03-ENG-EcoSensor-Wireless-Sensors-for-En-

- For detailed information on the available Data Acquisition mode ,please refer to our technical note
http://www.wireless-iot.beanair.com/files/TN-RF-008-Data-acquisition-modes-available-on-the-BeanDevice.pdf

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